

Program Manager, U. S. Army Environmental Center Contracts. Identified opportunities for business and developed task orders for \$15 million Total Environmental Program Support (TEPS) ID/IQ contract. Planned, estimated and negotiated work scopes, costs and schedules; staffed projects and managed Project Managers; ensured superior technical and financial performance for overall program. Projects included a base-closure RI/FS/ROD; remedial action for soil/groundwater contamination; NIKE site ground water monitoring; Rocky Mountain Arsenal air quality monitoring; air emission inventories for 27 Army installations; RI/FS planning for Fort Detrick, MD; RCRA studies at U.S. Military Academy. Technical Proposal Manager and Program Manager for winning, follow-on \$30 million contract.

Representative Expert Witness/Litigation Support Assignments.

- Evaluated site conditions and potential contribution of a waste generator to contamination at the BROS Superfund site, New Jersey. Reviewed technical reports, regulatory agency files and transcripts of depositions from previous site-related litigation. Prepared Expert's Report. Liberty Mutual Insurance Company v. Black & Decker Corp., et., al., U.S.D.C., D. Mass, C.A. No. 96-10804-DPW. 1997 - 1998; current assignment.
- Assisted U.S. Department of Justice in defending against liability for site contamination. Performed technical analyses and briefed counsel on environmental conditions and remedial actions at an industrial site in Michigan. Rospatch-Jessco Case, DJ File No. 90-11-3-1162. 1996 - 1997.
- Assisted U.S. Department of Justice in defending against liability for site contamination. Performed technical analyses, provided opinions, deposition and written testimony on environmental conditions and remedial actions at a former waste disposal and PCB-spill site in Washington, D.C. Foster v. U.S., U.S.D.C., D.C., C. A. No. 95-722. 1995 - 1996.
- Assisted U.S. Department of Defense, Air Force and Military Services, in limiting liability for remedial costs at a Superfund site in Washington. Researched prior site and adjacent property uses, users of contaminants, and site hydrogeology to reduce liability by millions of dollars. Prepared summary report. 1994.
- Assisted counsel for plaintiff seeking relief from environmental contamination of farmland and ground and surface water from an adjacent Superfund site landfill where hazardous and industrial wastes had been disposed. Reviewed technical information, prepared reports and provided Expert Witness Testimony at trial. Brown v. Keystone, U.S.D.C., Middle District of Pennsylvania, C. A. No. 1:CV890173. 1987-1992.

Representative Technical/Project Management Assignments

Project Manager, U.S. Army Cameron Station RI/FS/ROD. Responsible for technical and financial planning and performance on this multi-million dollar base-closure project completed on schedule and under budget. Supervised geophysical studies; asbestos, soil-gas and PCB transformer surveys; UST integrity testing; soil borings and groundwater monitor well installation; aquifer testing; and sampling of all media. Implemented pilot tests and interim remedial actions. Applied innovative techniques for groundwater assessment to meet demanding schedule. Led remedial action negotiations for 12 Operable Units with state and EPA, including many "no-action" determinations.

Project Manager, Cosden Chemical Superfund Site Remedial Design. Technical and management responsibility for remedial design project for soil and ground water contamination and D&D of on-site structures. Developed pre-design field tests to prove that site conditions did not warrant ROD-specified groundwater cleanup for metals. Planned pilot testing of cost-effective remedial alternative for VOCs in soil and ground water. Project included in-situ soil stabilization treatability study, aquifer tests, construction plans and specifications, and cost estimates.

Project Manager, Fort Detrick RI/FS Scoping. Planned innovative approach to prioritize sites, use on-site laboratories and field screening to minimize cost/expedite characterization of over 40 waste sites. Planned Focussed Feasibility Study to immediately address the suspected source of TCE in groundwater, which was found not to be an active source of contamination. Extensive interaction with regulators and citizen restoration advisory board ensured community acceptance of approach.

Community Technical Advisor, New Bedford Harbor (MA) and Lackawanna (PA) Superfund Sites. Assisted two communities understand remediation of hazardous waste sites in their communities. Interpreted technical details, articulated citizen concerns to EPA, facilitated public meetings. Monitored progress of remedial actions. Performed interim and post-closure inspections. Appeared in *Earthkeeping*, a 1993 PBS documentary about citizen involvement in environmental issues.

Community Relations Support, Delaware hazardous waste site. Supported an independent review of proposed site remediation plan. Planned and implemented CR strategy; facilitated public meetings; developed fact sheets/news releases/articles for publication; integrated community input into enhanced containment remedy accepted by the citizens and regulators.

Quality Assurance Officer, Western Boundary Area RI/FS, Aberdeen Proving Ground. Ensured quality for investigation and selection of remedial alternative for municipal supply wells impacted by contamination from Fire Training Area. Conceptual regional groundwater flow and transport modeling allowed rapid delineation, proving that the supply-wells capture zone contained the plume.

Project Manager/Hydrogeologist, RCRA Program Designs/Implementation, Various Sites U.S., Canada. Planned and implemented environmental monitoring programs at landfills in VA, MD, PA, NJ, MI, and Quebec. Designed and installed systems, performed sampling/analyses, interpreted results to regulatory agencies. Performed post-closure monitoring.

Project Manager/Hydrogeologist, Solley Road (MD), Monroe Township (NJ) and South Brunswick (NJ) Superfund Sites RI/FSs. Planned, negotiated with regulators, and conducted investigations at solid/hazardous waste sites. Evaluated and applied control technologies (liners, caps, slurry/clay cutoff walls, gas and leachate collection systems) and erosion controls.

Project Manager, Environmental Site Assessments and Compliance Audits. Evaluated baseline environmental conditions at over 30 industrial facilities for mergers/acquisitions, including mining, military products manufacturing, refining, transportation, and waste disposal facilities. Costs for compliance, investigation, and remediation of soil and ground water contamination were estimated.

Task Manager/Lead Auditor, Environmental Compliance Audits of Federal Facilities. Managed and conducted multi-media audits of facilities in MD, OH, FL, GA, OK, RI, OR, NJ and IL for compliance with federal/state/local regulations and EPA policies. Identified areas of non-compliance, recommended corrective action, and developed and revised audit protocols.

Project Manager, Nuclear Regulatory Commission EISs, Reviews of Department of Energy EAs for High-Level Nuclear Waste Repository, and Oversight of Uranium Mills and Mines. Led detailed assessments by scientific and engineering experts into impacts and performance of proposed high-level nuclear waste repositories in salt-dome formations in southeastern U.S. Coordinated with EPA, DOE, states and Congress. Prepared EIS on decommissioning the Edgemont, SD uranium mill. Responded to public comments. Participated in development of standards for monitoring and remediation of UMTRA sites. Monitored contamination/remediation efforts at mines and mills.

Certifications/Registrations/Affiliations

Registered Professional Geologist, Wyoming and Pennsylvania

Certified Professional Geologist, American Institute of Professional Geologists

Director and Technical Practices Committee Chairman, Hazardous Waste Action Coalition

Member, Advisory Board to U.S. EPA Consortium for Site Characterization Technology

Education

University of Idaho, M.S. Ground Water Hydrology, 1984

University of Maryland, B.S. Geology, 1980

Professional History

SCA Associates, Principal, 1997 - present

Kelly, Anderson, Pethick & Associates, Senior Associate, 1995 - 1997

Woodward-Clyde Federal Services, Project and Program Manager, Group Leader, 1990-1995

ENVIRON Corporation, Senior Associate, 1988-1990

Booz-Allen & Hamilton, Senior Consultant, 1987-1988

Browning-Ferris Industries, Project Manager and Hydrogeologist, 1985-1987

U.S. Nuclear Regulatory Commission, Hydrogeologist, Project Manager 1981-1985

(and University of Idaho, Research Fellow, 1982-1984)

Presentations and Publications

Innovative Management Techniques Accelerate Cleanup at DOE's Fernald Site. John Bradburne and Frank Anastasi, Advances in Environmental Technology section in Engineering News-Record, December 9, 1996.

Federal Agency Partnering: DOD. Invited Panelist with Army, Navy and Air Force Environmental Program Directors. Hazardous Waste World/Superfund XVII, Washington, D.C., October 13, 1996.

Remedial Design for Petroleum Hydrocarbons: Soil Vapor Extraction, Product Skimmers and Air Stripping. Anastasi, Frank S. and Hunter J. Loftin, Presented at Ground Water Remediation: Existing Technology and Future Directions, National Ground Water Association Conference, Las Vegas, NV, October 1994.

The Fort Detrick Remedial Investigation: An Innovative Approach to Expedite Site Characterization and Remediation. Anastasi, Frank S., Catherine Johnson and David Hoffman, Presented and Published in Proceedings of the 18th Annual Army Environmental R&D Symposium, Williamsburg, VA, June, 1994.

Using New Approaches to Meet Army Base Closure Schedules. Anastasi, Frank S., R. Alan Freed and Dennis Bowser, Presented and Published in Proceedings of Superfund '92 National Conference, Washington, D.C., December, 1992.

RI/FS Field Investigations and Interim Remedial Actions Supporting the Closure of Cameron Station, Virginia, a Case Study. Olinger, Lawrence W., Frank S. Anastasi and Kristine M. Kingery, Presented at the Federal Environmental Conference, Alexandria, VA, February 24, 1992.

Volumetric vs. Non-volumetric Testing: A Case Study of Apparently Conflicting Results from Two Different Methods of Testing the Integrity of Underground Storage Tanks. Anastasi, Frank S., Presented at ASTM Symposium on Leak Detection for Underground Storage Tanks, January 1992 in New Orleans, LA and Presented and Published in Proceedings of Superfund '91 National Conference, Washington, D.C., December 1991.

A Method for Collecting Soil Samples Beneath Lake-Bottom Sediments. Anastasi, F.S. and L.W. Olinger, Proceedings of the 15th Annual Army Environmental R&D Symposium, June, 1991.

Providing Technical Assistance Under the USEPA's TAG Grant Program. Anastasi, F.S., L. Van Hine, and J. Pomeroy, Proceedings of Superfund '90 National Conference, November, 1990.

An Analysis of Excursions at Selected In-Situ Uranium Mines in Wyoming and Texas. Staub, W.P. and N. E. Hinkle (Oak Ridge National Laboratory), R.E. Williams, F.S. Anastasi, J. Osenski and D. Rogness (Univ. of Idaho), NUREG/CR-3967, July 1986.

Appendix C. Expanded Details on Site History

History of Operations

Regal Petroleum Company operated a waste oil recycling facility at the site from 1961 to 1967. During the early 1960s, the lagoon was used to store waste oil until it could be processed (or "re-refined") to obtain petroleum products suitable for reuse. A former Regal employee stated that during the time he worked at the site (before 1965) bulk wastes were routinely dumped into the lagoon from trucks. He stated also that drums containing chemicals (in one specific instance acetone) were emptied into the lagoon. [Rascona - 1]

Regal's refining process was summarized by Mr. A. Hartung, a chemical engineer who worked at the site in 1965, as follows [Hartung - 1]:

- Waste oil brought to the site was placed into the lagoon, where heavy metal chips, mineral particles, sand and grit would settle out by gravity and fall to the bottom.
- A skimmer pump would remove oil from the lagoon by suction and pump it to an acid-treating tank. In the treater, acid and waste oil was mixed, resulting in a cleaned oil product and sludge byproduct.
- The acidic oily sludge was discharged onto the ground surface and allowed to run off into the lagoon.
- The treated oil product was mixed with filter clay and the resultant slurry was pumped through filter presses, resulting in a cleaner oil product and an oily clay residue.
- The residual oily clay material was disposed on the ground surface along the lagoon.
- The process concluded with distillation to remove gasoline or diesel fuel hydrocarbons, resulting in marketable lubricating oil.

A former site worker stated that some of the hydrocarbons removed from oil in the distillation process were disposed in the lagoon, and that sludges resulting from acid treating and filtering the oil were also disposed in the lagoon. [De Cola - 1]

By 1967, a fire had apparently disabled the oil refining operation. According to an inspection report filed in November 1967, Mr. Sam Segal stated that he rented the BROS site from SSC Corporation, and approximately 4,000 gallons of waste oil was delivered to the site each day. Since the refining operations were not active at that time, the oil was placed in storage in tanks. At the time of this inspection Segal reportedly stated that he planned to resume refining the waste oils after March, 1968. [NJAPC - 1]

BROS acquired the property in 1969. BROS resumed reprocessing oil about 1977, and continued this operation at the site until March 31, 1980 when the State of New Jersey ordered it to cease. De Cola, a BROS employee, the process used by BROS to recycle waste oil involved heating it, pumping it through a shaking "Sweco" filter, and collecting

the filtered oil for resale. [De Cola – 2]. The site may have continued to accept waste oil for storage after refining activities ceased until all commercial waste handling activities were prohibited by court order in 1981.

Some tanks at the site were used by Regal, SSC Corporation and BROS to store waste oil. Some tanks were rented by others for storage of chemicals and liquid wastes, including commercial spent solvents, industrial wastes, and oils containing polychlorinated biphenyls (PCBs) and other hazardous substances. A 1959 aerial photograph of the site shows at least six tanks and possibly seven trailers. By 1960, at least 38 tanks were observed, and a 1971 photograph revealed at least 94 tanks. [ERI – 1]

Description of Typical Site Conditions

Materials appear to have been released routinely from trucks and trailers, the tank farm areas and the refinery during the history of site operations. Specific evidence of such releases has been reported as follows.

- Widespread liquid waste disposal is evident in aerial photographs taken during the period 1959 – 1965. Disposal practices seen in these photographs included direct disposal onto the ground; disposal via drainage channels that ran from tank areas to the lagoon; spills and leaks from loading, unloading and truck-washing activities; and disposal into bermed areas in the northeast and southwest corners of the lagoon. Evidence for this included vehicles observed discharging wastes onto the ground and into the lagoon and bermed areas; stains flowing from tank areas and trucks; and pipes leading from tanks to liquid waste pools and to channels that led to the lagoon. [ERI – 1]
- A chemical engineer hired as a consultant to BROS recalled that spills and leaks were common. In 1965 – 1966, the site was “permeated with oil... pipes would leak and drips, splashes and spills... If samples were taken from any portion of the land ... you would find oil... Pipes were allways weeping at the joints, the ground was really quite corrosive... too corrosive to sustain [buried pipes]”. [Hartung – 2]
- The November 2, 1967 New Jersey Air Pollution Control inspection report cited “ the surface area of the plant was covered in spots with oil saturated water pools.” [NJAPC – 1]
- On June 28, 1971, one of the tanks leased by Rollins Environmental Services experienced a leak. Approximately 59,000 gallons of a mixture of Ammonium Methacrylate and Minerec Caustic Sulfide was released from the tank bottom outlet valve and ran off into the lagoon. [Rollins – 1]
- A former truck driver who delivered oil to the site recalled that in 1971 – 1972 “we were walking in oil and mud. It was already six, eight inches deep. The whole place was slushy, like a quagmire in there”. [Smith – 1]

- A January 7, 1974 memorandum referred to residual material from a tank spill of the previous week. [Rollins – 2]
- On September 19, 1976 an undetermined quantity of toluene spilled from a Rollins Tank Truck. [Rollins – 3]

Relationship of Black & Decker to the BROS Site

Black & Decker (B&D) allegedly was connected to the BROS site through its use of a waste hauler, A&A Waste Oil (A&A), to remove waste materials from B&D's Hampstead, Maryland facility. B&D reported that A&A removed waste from the facility between approximately 1973 and 1982. [B&D – 2]

Alexander & Alexander reported that A&A removed waste from the Hampstead facility as early as approximately 1972, and that the monthly quantity removed was between 6,000 and 11,000 gallons. [B&D – 4]

The BROS Settlement Process Committee alleged that 136,012 gallons of B&D waste reached the BROS site. The only dates of alleged transport to BROS were March 1973 – March 1974; June 1974 – November 1974; January 1975 – January 1978; February 78 – January 1979; and July 1979. [B&D – 2]

Regulatory Action Identifying Harm

New Jersey regulatory agencies' concerns about the site were documented as early as May 1969. According to information presented in deposition related to previous litigation, a site visit by New Jersey Health Department representatives on May 2, 1969 was prompted by concerns of air pollution originating from the site. A report of the site visit stated that oil was being pumped from the lagoon into tanks, and that leaking 55-gallon drums of chemicals were observed around the lagoon perimeter. [Borrelli – 1]

By March 1970, BROS had hired a consultant, Dr. Schoengerger, in response to New Jersey's concerns, to reclaim the lagoon and prevent groundwater pollution. [Borrelli – 1]

An August 2, 1971 memorandum from the New Jersey Department of Environmental Protection (NJDEP) documented a complaint of odors from the facility. The memorandum states that the company [BROS] was "ordered not to dump any solid waste into the pond... [and] to fill in the pond." The concern was that "the bottom layer of the lagoon would be punctured and cause an underwater pollution problem." [NJDEP – 1]

As early as 1975, New Jersey agencies began to require BROS to implement remedial measures to stabilize the lagoon dike and treat and discharge the lagoon contents. The New Jersey Department of Environmental Protection (NJDEP) filed suit against BROS and in April 1976 a consent order was filed requiring site characterization, treatability studies and construction and operation of a waste oil treatment plant. In response to BROS' failure to comply with the order, a second consent order was filed in 1977.

A November 13, 1979 memorandum documents a September 18, 1979 site inspection by the NJDEP that noted the following conditions. [NJDEP – 2]

- Beyond a secondary dike “a former overflow or wash-out had contaminated part of the marshy flats adjacent to the and-pit lakes....floating drums with chemical labels in the lagoon...soils in the vicinity of nearly all storage tanks show evidence of prior spills or leaks. The soil emits strong petroleum and petrochemical odors.”
- A “valved drain pipe located at the bottom of the [oil/water] separator and a nearby hose leading to the oil lagoon” hinted at disposal of tank bottoms and sludges in the lagoon.
- The adjacent Cedar Swamp contained a “100 to 300 foot wide swath of black , oil-scoured, dead trees and vegetation” that extended approximately one-quarter mile from the site.
- Oil release prevention devices required by the orders were observed not to be effective. Oil releases were observed beyond a filter fence on a tributary on the adjacent sand-pit lakes. The memo noted that “No vegetative matter grows within a 30 foot radius of the seepage in the sand-pit lake.”
- The water treatment facilities required by the orders to treat lagoon liquids were not operational.

Overflow of the BROS lagoon with off-site impacts was a concern. The oil floating on top prevented water from evaporating and precipitation continued to result in rising lagoon levels. Overflows caused widespread vegetative damage to about three acres of adjacent land. A 1962 aerial photograph showed a breach in a berm at the northeast corner of the lagoon. A 1970 photograph shows the impacts of off-site releases in the wooded area east of the site, which contained liquids and numerous dead trees. A 1972 photograph shows a drainage ditch leading to pooled liquid located in the wooded area with dead vegetation. [ERI – 1]

Although New Jersey had ordered BROS in 1979 to begin disposing of lagoon liquids to lower the lagoon, these efforts did not prove successful. In the spring of 1981, the U.S. Coast Guard raised the lagoon dike approximately five feet in response to rising lagoon levels and the threat of an overflow. In 1982 EPA pumped down the lagoon level about two feet. Again in 1983, EPA performed emergency response actions to lower the lagoon level an additional two feet. In 1984, an initial lagoon cleanup was performed that resulted in lowering of the lagoon level by ten feet.

On October 2, 1980, the United States filed suit against BROS pursuant to Section 7003 of RCRA. In October 1981, EPA proposed adding the BROS site to the Superfund National Priorities List (NPL). A consent decree was signed on June 25, 1982 specifying payments to be made by BROS, granting EPA access to the site. In April 1983, EPA sent

information requests to potentially responsible parties (PRPs) identified primarily by BROS records of lessees of the tanks. In September, 1983 BROS was placed on the Superfund NPL ranking 35th.

EPA's Record of Decision (ROD) signed in December 1984 required the following remedial actions.

- Removal and disposal of lagoon contents and buried drums
- Removal and disposal of tanks and contained wastes
- Extension of a water supply pipeline and hookup to nearby homes
- A Phase 2 RI/FS for groundwater cleanup studies and other site closure remedies

At the time of this report, the PRPs' consultant has submitted a plan for the Phase 2 RI/FS. EPA has provided preliminary comments on that plan.

TABLE 1. BROS SITE PRPs IDENTIFIED BY USEPA

Companies Notified August 1988

President
Allied Signal, Inc.
Columbia Parkway
Morristown, NJ 07960

President
Continental Vanguard, Inc.
204 Harding Avenue
Bellmawr, NJ 08031

President
Amchem Products, Inc.
300 Brookside Avenue
Ambler, PA 19002

President
Dow Chemical Co.
2030 Willard H. Dow Center
Midland, MI 48674

President
Atochem, Inc.
South Columbia Street
P.O. Box 304
Woodbury, NJ 08096

President
E.I. Du Pont De Nemours & Co.
1007 Market Street
Wilmington, DE 19898

President
AT&T Technologies, Inc.
222 Broadway
New York, NY 10038

President
Electronic Associates, Inc.
185 Monmouth Park Highway
West Long Branch, NJ 07764

President
BASF America Corp.
9 Campus Drive
Parsippany, NJ 07054

President
Essex Industrial Chemical Corp
1401 Broad Street
Clifton, NJ 07015

President
The Boeing Company
7755 E. Marginal Way, S.
Seattle, WA 98108

President
General Electric Co.
3135 Easton Turnpike
Fairfield, CT 06431

President
Container Corp. of America
One First National Plaza
Chicago, IL 60603

President
General Motors Corp.
3044 W. Grand Boulevard
Detroit, MI 48202

President
Hoffman-LaRoche, Inc.
340 Kingsland Street
Nutley, NJ 07110

President
Penick Corp.
158 Mt. Olive
Newark, NJ 07114

Supplement to Expert's Report
Bridgeport Rental and Oil Services (BROS) Site
Logan Township, New Jersey

February 11, 2003

Prepared for
Liberty Mutual Insurance Company

Prepared by
Frank S. Anastasi, PG
Principal

SCA Associates
118 South Adams Street
Rockville, MD 20850

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Attorney Work Product*

Prepared at the Request of Counsel

SCA Associates was retained by Liberty Mutual Insurance Company, through its counsel Holland and Knight, to provide this supplement to our April 30, 1998 Expert's Report relating to the Bridgeport Rental and Oil Services (BROS) Superfund Site in the matter of Liberty Mutual Insurance Company vs. Black & Decker Corporation, et al., U.S.D.C. D. Mass., C.A. No. 96-10804-DPW.

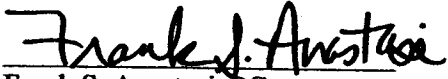
To up-date that report, I, Frank S. Anastasi, PG, SCA Associates Principal, researched the results of site investigation and remediation activities to learn of any findings that EPA and/or BROS responsible parties might have reached since April 1998. I searched on-line databases of the U.S. Environmental Protection Agency and New Jersey Department of Environmental Protection and contacted Mr. Ron Naman, U.S. EPA Remedial Project Manager, by telephone to inquire about the status of site activities and whether any reports had been published since 1997 about site activities. Mr. Naman informed me that ground water investigations and ecological assessments were ongoing to characterize the extent of off-site impacts, but results of these efforts had not been reported yet. He provided me with a brief list of documents that had been published since 1997, and I requested and was provided with items 1 through 5 listed on the following page.

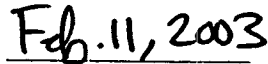
I also traveled to Logan Township where I observed current site conditions and reviewed documents that were available at the Logan Township Clerk's office (item 6 listed on the following page). I reviewed the documents listed on the following page and considered whether this additional information had any bearing on the opinions expressed in my April 30, 1998 Expert's Report.

Based on my review of the documents listed below, and my understanding of the history of operations and results of investigations and remediation activities conducted there to date, I am not aware of any information that would alter any of the opinions expressed in my April 30, 1998 Expert's Report. Furthermore, the outcome of the recent ground water investigations and ecological assessments would not alter my opinions in any way. Therefore, in my opinion, the opinions expressed in my April 30, 1998 Expert's Report are still valid today.

I was compensated for my work preparing this report at a rate of \$175/hour for 47 hours.

A copy of my resume is attached.


Frank S. Anastasi, PG
Principal
SCA Associates


Date

*Privileged and Confidential
Attorney Work Product*

Prepared at the Request of Counsel

Documents Reviewed

1. Technical Memorandum No. 7. Stage 1 Debris/Fill Area Investigation Results and Proposed Stage 2 Investigations. Roux Associates. October 3, 2000.
2. Technical Memorandum No. 8. Summary of Debris/Fill Area Investigation Results. Roux Associates. May 17, 2001.
3. Bridgeport Rental and Oil Services (BROS) Superfund Site, Phase 2 RI/FS Update No. 5. Roux Associates. August 2002.
4. Fact Sheet, Bridgeport Rental and Oil Services Superfund Site. U.S. EPA Region 2. April 2002.
5. Addendum Summaries: BROS Work Plan Addendum No.1 – Investigation of Drum/Fill Areas (October 26, 1999); and BROS Work Plan Addendum No.2 – Additional Soil, LNAPL, and Groundwater Investigation Activities (July 26, 2000). U.S. EPA Region 2. December 2003.
6. Monthly Progress Reports, Bridgeport Rental and Oil Services Superfund Site. Environmental Liability Management, Inc. January 2002 – November 2002.

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Rockville, MD 20850
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Fax 301/340-6828

SCA Associates

Resume of

FRANK S. ANASTASI, PG

Principal, Independent Consulting Practice (SCA Associates). Frank Anastasi has more than 20 years of experience analyzing hydrogeology and environmental contamination at hazardous waste sites and industrial facilities, and developing and evaluating approaches to site remediation. He performs technical and management consulting assignments for a wide variety of clients, including technical evaluation, analysis and expert witness services in support of environmental litigation and insurance settlement cases involving hazardous waste site investigations and remedial actions. Mr. Anastasi also serves as Technical Advisor at USEPA Superfund sites and at sites addressed under the Defense Department Installation Restoration Program.

Previous Positions

Manager, Environmental Programs Business Unit, 1995-1997. Developed Strategic Business Unit Plan for this new initiative. Planned and implemented marketing efforts focused on senior executives of major government contractors. Identified target opportunities, potential clients, and marketed support services. Recruited and managed senior-level consultants with in-depth customer knowledge to help clients compete for major DOD and DOE environmental contracts. Analyzed trends in procurement policies and major programs for impacts on business opportunities.

Group Leader, Assessment and Remediation, 1990-1995. Led an effective and profitable team of multi-disciplinary professionals on environmental assessment and compliance programs, base-closure and installation-restoration projects, and Superfund RI/FS/RODs and RODs. Provided line management, leadership and mentoring for 17-member group of engineers, geologists, chemists, toxicologists, and support staff. As a founding member of the regional federal-programs office, played key role in recruiting, training and coaching staff of nearly 100 people.

Board of Directors Member, and Technical Practices Committee Chairman, Hazardous Waste Action Coalition, 1995-1998. Advocated environmental industry positions, promoted advancement of the state-of-the-practice for enhance business opportunities. Facilitated interactions of agency representatives, policy makers and industry leaders on technical and business-related matters.

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Program Manager, U. S. Army Environmental Center Contracts. Identified opportunities for business and developed task orders for \$15 million Total Environmental Program Support (TEPS) ID/IQ contract. Planned, estimated and negotiated work scopes, costs and schedules; staffed projects and managed Project Managers; ensured superior technical and financial performance for overall program. Projects included a base-closure RI/FS/ROD; remedial action for soil/groundwater contamination; NIKE site ground water monitoring; Rocky Mountain Arsenal air quality monitoring; air emission inventories for 27 Army installations; RI/FS planning for Fort Detrick, MD; RCRA studies at U.S. Military Academy. Technical Proposal Manager and Program Manager for winning, follow-on \$30 million contract.

Representative Technical Expert/Insurance Settlement/Litigation Support Assignments

Hydrogeological Evaluations of Contaminated Industrial and Waste Disposal Sites. Analyzed geological, hydrological, and other site characterization data to evaluate the nature, extent, and sources of contamination at sites where manufacturing activities and waste disposal practices resulted in releases to ground water. Mr. Anastasi has evaluated conditions at scores of military, industrial, and disposal sites located across the United States, including sites in California, Colorado, Maryland, Virginia, Pennsylvania, New York, New Jersey, Florida, Texas, Washington and Oregon. In two recent cases, concerns include transport of volatile organic compounds from the ground water through the vadose zone into residential indoor air. Typically, Expert Reports were prepared containing professional opinions as well as detailed analysis of remediation plans and their costs.

Review of Pilot Studies and Risk Assessment/Remedial Alternatives for Contaminated Sediments in the Peconic River, New York.

Over the past three years, Mr. Anastasi has reviewed efforts to characterize contamination, evaluate potential remedial alternatives, assess human health and environmental risk, and pilot-test innovative technologies at DOE's Brookhaven National Laboratory on Long Island. Technologies have included phyto- and electrochemical - remediation, constructed wetlands, and vacuum dredging. Contaminants include heavy metals, PCBs and organic compounds.

Former Chemicals Manufacturing Plants and Third-Party Disposal Sites.

Reviewed history of operations, regulatory actions, and site investigation/cleanup activities at former manufacturing plants and USEPA Superfund Sites where plant wastes allegedly were disposed. Evaluated nature/extent of contamination and effectiveness of remedial actions. Evaluated costs for past and future remedial activities and likelihood of cleanup scenarios envisioned by insured for soil and ground water. Determined in some cases that claimant had little to no future remediation liability in contrast to that claimed. Prepared Expert Report and gave testimony in deposition.

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Military and Business Equipment Manufacturing Plants, CA. Provided technical analysis and opinions concerning the need for and costs of past investigation and clean-up of soil and ground water contaminated by solvents and heavy metals. Releases from past operations at these two plants contaminated soil and ground water and impacted municipal well fields where communities were dependant on ground water for domestic use and agricultural purposes. Provided independent estimate of likely future environmental liabilities and costs of further investigation and remediation.

Petroleum Refinery and Petrochemical Plant Complex, New Jersey. Reviewed history of operations, contaminant investigations and remedial actions at this 100-year old facility. Liabilities include free-phase petroleum products, soil and ground water contamination and highly contaminated sediments. Evaluated past cost for investigation and clean-up and potential costs for future remediation for on-site waste management units, discharges to surface waters and off-site properties. Analyzed environmental cost database for more than \$60 million payments to contractors and internal/corporate costs to estimate appropriate past costs and to estimate reasonable ranges of future liabilities (\$100s of millions).

Wood and Paper Products Manufacturing Facilities, California. Provided analysis, evaluation and expert opinions on the need for and appropriateness of remedial action at saw mills, pulp mills, storage and disposal facilities. Examined insurance claims and evaluated investigation and remediation activities and their costs claimed by insured. Prepared reports of findings, opinions and cost analyses.

Phosphate Mine, Waste Disposal Facilities and Chemical Plants, FL, OH and WV. Provided EIL settlement support for former plant sites where past operations and waste disposal activities contaminated soil, surface water and groundwater. Performed file reviews, detailed analysis of technical and cost reports, and evaluated whether past and proposed investigations and remedial actions were appropriate and the reasonableness of their costs. Prepared report of findings, including independent cost estimates.

Rail Yard and Maintenance/Repair Facilities, Wood Treatment Plant and Lead/Zinc Smelter, Virginia. Reviewed history of operations, regulatory actions, site investigation/cleanup activities at three separate industrial facilities. Evaluated nature/extent of contamination and effectiveness of remedial actions. Evaluated costs for past and future remedial activities and likelihood of cleanup scenarios envisioned by insured for soil, ground water and wetlands sediment. Determined probable remediation liability of only a fraction of claim. Prepared expert's report.

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Former Container Manufacturing Plants and Third-Party Disposal Sites.

Researched litigation files and identified key documents for detailed evaluation of past remediation activities and projected future liabilities. Analyzed regulatory requirements, owners claims and proposed remediation plans. Developed independent estimates of reasonable and appropriate past and future costs. Prepared Expert Report.

Superfund Site, Pennsylvania. Assisted counsel in case of environmental contamination of farmland and ground and surface water from an adjacent landfill where hazardous and industrial wastes had been disposed. Reviewed technical information, prepared reports and provided expert witness testimony at trial.

BROS Superfund Site, New Jersey. Evaluated site conditions and potential contribution of a waste generator to contamination at this site. Reviewed technical reports, regulatory agency files and transcripts of depositions from site-related litigation. Prepared report; gave deposition.

Industrial Site, Michigan. Assisted U.S. Department of Justice in defending against liability for site contamination. Performed technical analyses and briefed counsel on environmental conditions. Evaluated remedial action plans. Prepared summary report and opinions for counsel.

Former Waste Disposal and PCB-spill Site, Washington, D.C. Assisted U.S. Department of Justice in defending against liability for site contamination. Analyzed site data, adequacy of past remediation efforts, and the need for further cleanup activities. Evaluated a proposed remedial action plan and cost estimates. Provided opinions, deposition and written testimony.

Superfund Site, Washington. Assisted U.S. Department of Defense, Air Force and Military Services, in limiting liability for remedial costs for groundwater contamination. Researched prior site and adjacent property uses, users of contaminants, and site hydrogeology to reduce liability by millions of dollars. Prepared summary report.

Elk Trucking Superfund Site, New Jersey. Evaluated site characterization data reports, remediation plan and risk assessment for site of former coal gassification plant. Evaluated ground water and soil remediation plan; identified opportunities to enhance efficiency and effectiveness of cleanup. Evaluated preliminary remedial design and cost estimate, and identified errors and changes reducing the cost by approximately 30 percent. Prepared report of findings for use in settlement.

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Representative Technical/Project Management Assignments

Project Manager, U.S. Army Cameron Station RI/FS/ROD. Responsible for technical and financial planning and performance on this multi-million dollar base-closure project completed on schedule and under budget. Supervised geophysical studies; asbestos, soil-gas and PCB transformer surveys; UST integrity testing; soil borings and groundwater monitor well installation; aquifer testing; and sampling of all media. Implemented pilot tests and interim remedial actions. Applied innovative techniques for groundwater assessment to meet demanding schedule. Led remedial action negotiations for 12 Operable Units with state and EPA, including many "no-action" determinations.

Project Manager, Cosden Chemical Superfund Site Remedial Design. Technical and management responsibility for remedial design project for soil and ground water contamination and D&D of on-site structures. Developed pre-design field tests to prove that site conditions did not warrant ROD-specified groundwater cleanup for metals. Planned pilot testing of cost-effective remedial alternative for VOCs in soil and ground water. Project included in-situ soil stabilization treatability study, aquifer tests, construction plans and specifications, and cost estimates.

Project Manager, Fort Detrick RI/FS Scoping. Planned innovative approach to prioritize sites, use on-site laboratories and field screening to minimize cost/expedite characterization of over 40 waste sites. Planned Focussed Feasibility Study to immediately address the suspected source of TCE in groundwater, which was found not to be an active source of contamination. Extensive interaction with regulators and citizen restoration advisory board ensured community acceptance of approach.

Quality Assurance Officer, Western Boundary Area RI/FS, Aberdeen Proving Ground. Ensured quality for investigation and selection of remedial alternative for municipal supply wells impacted by contamination from Fire Training Area. Conceptual regional groundwater flow and transport modeling allowed rapid delineation, proving that the supply-wells capture zone contained the plume.

Project Manager/Hydrogeologist, RCRA Program Designs/Implementation, Various Sites U.S., Canada. Planned and implemented environmental monitoring programs at landfills in VA, MD, PA, NJ, MI, and Quebec. Designed and installed systems, performed sampling/analyses, interpreted results to regulatory agencies. Performed post-closure monitoring.

Project Manager/Hydrogeologist, Solley Road (MD), Monroe Township (NJ) and South Brunswick (NJ) Superfund Sites RI/FSs. Planned, negotiated with regulators, and conducted investigations at solid/hazardous waste sites. Evaluated and applied control technologies (liners, caps, slurry/clay cutoff walls, gas and leachate collection systems) and erosion controls.

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Project Manager, Environmental Site Assessments and Compliance Audits. Evaluated baseline environmental conditions at over 30 industrial facilities for mergers/acquisitions, including mining, military products manufacturing, refining, transportation, and waste disposal facilities. Costs for compliance, investigation, and remediation of soil and ground water contamination were estimated.

Task Manager/Lead Auditor, Environmental Compliance Audits of Federal Facilities. Managed and conducted multi-media audits of facilities in MD, OH, FL, GA, OK, RI, OR, NJ and IL for compliance with federal/state/local regulations and EPA policies. Identified areas of noncompliance, recommended corrective action, and developed and revised audit protocols.

Project Manager, Nuclear Regulatory Commission EISs, Reviews of Department of Energy EAs for High-Level Nuclear Waste Repository, and Oversight of Uranium Mills and Mines. Led detailed assessments by scientific and engineering experts into impacts and performance of proposed high-level nuclear waste repositories in salt-dome formations in southeastern U.S. Coordinated with EPA, DOE, states and Congress. Prepared EIS on decommissioning the Edgemont, SD uranium mill. Responded to public comments. Participated in development of standards for monitoring and remediation of UMTRA sites. Monitored contamination and remediation efforts at mines and mills.

Representative Technical Advisor Assignments

Technical Advisor at the U.S. Department of Energy's Brookhaven National Laboratory, Long Island, NY. Assist the community in understanding technical details of the investigation and remediation of this high-profile federal facility being addressed under CERCLA. Over fifty years of industrial R&D activity has contaminated soil, ground water and surface water resources with organic compounds, heavy metals and radionuclides. Review and evaluate CERCLA activities and helps the community contribute to effective decision making. Interpret technical information for community coalition that represents more than 20 organizations with diverse views and interests. Provide neutral, balanced assistance to facilitate clean-up progress in the face of intense pressure from political, environmental and public-health activists.

Technical Advisor to the Restoration Advisory Boards at Defense Supply Center Philadelphia, McClellan (CA) and Lowry (CO) Air Force Bases, and Philadelphia Naval Shipyard, PA. Support community involvement in the cleanup process at these DLA, USAF and USN installations. Review and interpret investigation and remediation activities to keep concerned citizens informed about progress. Participate in public meetings, facilitate interactions between installation personnel, regulatory agencies and the public, and help other stakeholders appreciate the public's concerns. Enhance citizens' understanding of the technical details of environmental clean-up projects so they can play a more meaningful role in the decision-making process.

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Technical Advisor, New Bedford Harbor (MA) and Lackawanna (PA) Superfund Sites. Assisted two communities understand remediation of hazardous waste sites in their communities. Interpreted technical details, articulated citizen concerns to EPA, facilitated public meetings. Monitored progress of remedial actions. Performed interim and post-closure inspections. Appeared in *Earthkeeping*, 1993 PBS citizen involvement in environmental issues documentary.

Certifications/Registrations/Affiliations

Registered Professional Geologist, Wyoming and Pennsylvania

Certified Professional Geologist, American Institute of Professional Geologists

Director and Technical Committee Chairman, Hazardous Waste Action Coalition,
1995- 1998

Member, Advisory Board to U.S. EPA Consortium for Site Characterization
Technology, 1995-1997

Education

University of Idaho, M.S. Ground Water Hydrology, 1984

University of Maryland, B.S. Geology, 1980

Professional History

SCA Associates, *Principal*, 1997 - present

Kelly, Anderson, Pethick & Associates, *Senior Associate*, 1995 - 1997

Woodward-Clyde Federal Services, *Project and Program Manager, Group Leader*,
1990-1995

ENVIRON Corporation, *Senior Associate*, 1988-1990

Booz-Allen & Hamilton, *Senior Consultant*, 1987-1988

Browning-Ferris Industries, *Project Manager and Hydrogeologist*, 1985-1987

U.S. Nuclear Regulatory Commission, *Hydrogeologist, Project Manager* 1981-1985
(and University of Idaho, *Research Fellow*, 1982-1984)

Presentations and Publications

Evaluation of Phase 3 Ground Water to Indoor Air VOC Migration Pathway Investigation. Lowry Air Force Base, Colorado. Presentation to Lowry AFB Restoration Advisory Board. Denver, Colorado. August 2002.

Review and Analysis of Key Issues for Peconic River Sediments Risk Assessment and Remedial Action. Brookhaven National Laboratory, New York. Presentation to DOE/BNL and Community Advisory Council. August 2002.

Evaluation of Phase I Pilot Studies for Interim Remedial Actions to Control Ground Water Contamination at the Former Lowry Air Force Base, Colorado. Presentation to Lowry AFB Restoration Advisory Board. Denver, Colorado. July 2002.

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Review and Summary of Ground Water Monitoring Program at the Girard Point Management Area. Presentation to Philadelphia Naval Shipyard Restoration Advisory Board Meeting. Philadelphia, PA. October 30, 2000.

Environmental Career Opportunities: Outlook and Perspectives. Johns Hopkins University Environmental Sciences and Policy Graduate Program. Baltimore, MD. November 8, 1999.

Summary of Installation Restoration Program Progress at Defense Supply Center, PA and Plans for Completing Clean-up. Restoration Advisory Board Meeting, Philadelphia, PA. September 14, 1999.

Technical Assistance: Knowledge is Power. Invited Panelist at the U.S. EPA 1999 National Community Involvement Conference, Kansas City, MO, May 26, 1999.

The Role of the Consultant in Environmental Remediation. Seminar for Graduate Students in Interdisciplinary Sciences. University of Maryland, College Park, MD. October 27, 1998.

Innovative Management Techniques Accelerate Cleanup at DOE's Fernald Site. John Bradburne and Frank Anastasi, Advances in Environmental Technology section in Engineering News-Record, December 9, 1996.

Federal Agency Partnering: DOD. Invited Panelist with Army, Navy and Air Force Environmental Program Directors. Hazardous Waste World/Superfund XVII, Washington, D.C., October 13, 1996.

Remedial Design for Petroleum Hydrocarbons: Soil Vapor Extraction, Product Skimmers and Air Stripping. Anastasi, Frank S. and Hunter J. Loftin, Presented at Ground Water Remediation: Existing Technology and Future Directions, National Ground Water Association Conference, Las Vegas, NV, October 1994.

The Fort Detrick Remedial Investigation: An Innovative Approach to Expedite Site Characterization and Remediation. Anastasi, Frank S., Catherine Johnson and David Hoffman, 18th Annual Army Environmental R&D Symposium, Williamsburg, VA, June, 1994.

Using New Approaches to Meet Army Base Closure Schedules. Anastasi, Frank S., R. Alan Freed and Dennis Bowser, Superfund '92 National Conference, Washington, D.C., December, 1992.

RI/FS Field Investigations and Interim Remedial Actions Supporting the Closure of Cameron Station, Virginia, a Case Study. Olinger, Lawrence W., Frank S. Anastasi and Kristine M. Kingery, Presented at the Federal Environmental Conference, Alexandria, VA, February 24, 1992.

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Volumetric vs. Non-volumetric Testing: A Case Study of Apparently Conflicting Results from Two Different Methods of Testing the Integrity of Underground Storage Tanks. Anastasi, Frank S., Presented at ASTM Symposium on Leak Detection for Underground Storage Tanks, January 1992 in New Orleans, LA and Presented and Published in Proceedings of Superfund '91 National Conference, Washington, D.C., December 1991.

A Method for Collecting Soil Samples Beneath Lake-Bottom Sediments. Anastasi, F.S. and L.W. Olinger, Proceedings of the 15th Annual Army Environmental R&D Symposium, June, 1991.

Providing Technical Assistance Under the USEPA's TAG Grant Program. Anastasi, F.S., L. Van Hine, and J. Pomeroy, Proceedings of Superfund '90 National Conference, November, 1990.

An Analysis of Excursions at Selected In-Situ Uranium Mines in Wyoming and Texas. Staub, W.P. and N. E. Hinkle (Oak Ridge National Laboratory), R.E. Williams, F.S. Anastasi, J. Osenski and D. Rogness (Univ. of Idaho), NUREG/CR-3967, July 1986.

Aquifer Restoration at Uranium In-Situ Mines. Anastasi, F.S. and R.E. Williams, Low Level, Uranium Mill Tailings and Hazardous Wastes Symposium, Colorado State Univ., February, 1985.

Aquifer Restoration at Uranium In-Situ Leach Sites. Anastasi, F.S. and R.E. Williams, International Journal of Mine Water, Vol. 3, No. 4, December 1984.

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SCA Associates

**Litigation Support Experience
Of
Frank S. Anastasi, PG**

Mr. Anastasi has been deposed, testified at trial as an expert, and prepared expert reports, affidavits and declarations in support of environmental and toxic-tort litigation. This experience is listed below.

1. Expert Report (November 2000) and Deposition (March 2001) related to environmental impairment and remedial actions at former paint manufacturing plants and waste disposal sites in the matter of The Glidden Company vs. Aetna Casualty & Surety Co., et al., No. 98-CV-722 (CRR), Bergen County, No. BER-L-5587-97.
2. Declaration in Lieu of Testimony (August 2000) related to the source of contamination and remedial options and costs at a property in Washington, D.C. in the matter of P. Wesley Foster, Jr. v. United States of America, et al., U.S. D.C., District of Columbia, No. 95-CV-722 (CRR).
3. Expert Report (April 1998) and Deposition (May 1999) related to the BROS Superfund Site in the matter of Liberty Mutual Insurance Company v. Black & Decker Corporation (B&D), et al., U.S.D.C., D. Mass., C. A. No. 96-10804-DPW.
4. Declaration in Lieu of Testimony (May 1996) related to contaminated property in Washington, D.C. in the matter of P. Wesley Foster, Jr. v. United States of America, et al., U.S. D.C., District of Columbia, C. A. No. 95-CV-722 (CRR).
5. Deposition and Expert Report (May 1995) and Deposition (1996) related to contaminated property in Washington, D.C. in the matter of P. Wesley Foster, Jr. v. United States of America, et al., U.S. D.C., District of Columbia, C. A. No. 95-CV-722 (CRR).
6. Expert Report and Testimony at Trial (November 1992) related to property contaminated by an adjacent Superfund site in the matter of Brown v. Keystone, U.S.D.C., Middle District of Pennsylvania, C. A. No. 1:CV890173.